

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of initializing a communication link between a first transceiver and a second transceiver for transferring data therebetween, said method comprising:

(a). analyzing channel properties of a plurality of sub-channels within said communication link;

(b). identifying a predefined number of sub-channels having an anticipated highest performance for communication;

(c). communicating said sub-channels between said first and second transceivers; and

(d). transmitting information for initializing said communication link using said sub-channels wherein at least steps (b) and (c) are performed between a channel analysis phase and an exchange phase of initialization.

2. (Original) The method of claim 1, wherein said anticipated highest performance is determined by a signal-to-noise ratio (SNR) of said sub-channels.

3. (Original) The method of claim 1, wherein said first transceiver identifies a first set of said sub-channels for upstream communication and said second transceiver identifies a second set of said sub-channels for downstream communication.

4. (Original) The method of claim 1, wherein said communicating further comprises communicating said sub-channels using a one bit per symbol modulation scheme.

5. (Original) The method of claim 1, wherein said act of communicating further comprises communicating a cyclic prefix in addition to said sub-channels.

6. (Original) The method of claim 1, wherein said act of communicating further comprises communicating a validity check in addition to said sub-channels.

7. (Original) The method of claim 1, wherein said information for initializing said communication link is transmitted using a two bit per symbol modulation scheme.

8. (Currently Amended) A method of initializing a communication link between a first transceiver and a second transceiver for transferring data therebetween, said method comprising:

(a). identifying a predefined number of sub-channels having an anticipated highest performance for communication;

(b). communicating said sub-channels between said first and second transceivers;
and

(c). transmitting information for initializing said communication link using said sub-channels wherein at least steps (a) and (b) are performed between a channel analysis phase and an exchange phase of initialization.

9. (Currently Amended) An apparatus in an asynchronous digital subscriber line (ADSL) central office termination unit (ATU-C) for improving performance of a communication link, comprising a processor configured to control said ATU-C to execute processing that includes:

(a) analyzing channel properties of a plurality of sub-channels within said communication link;

(b) identifying a predefined number of first sub-channels having an anticipated highest performance for communication;

(c) communicating, to an ADSL remote termination unit (ATU-R), said first sub-channels;

(d) receiving, from said ATU-R, information identifying a predefined number of second sub-channels;

(e) receiving, from said ATU-R using said second sub-channels, information for initializing said communication link; and

(f) transmitting, to said ATU-R using said first sub-channels, information for further initializing said communication link wherein at least steps (b) to (d) are performed between a channel analysis phase and an exchange phase of initialization.

10. (Original) The apparatus of claim 9, wherein said processor is further configured to control said ATU-C to communicate said first sub-channels using a one bit per symbol modulation scheme.

11. (Original) The apparatus of claim 9, wherein said processor is further configured to control said ATU-C to communicate a cyclic prefix in addition to said first sub-channels.

12. (Original) The apparatus of claim 9, wherein said processor is further configured to control said ATU-C to communicate a validity check in addition to said first sub-channels.

13. (Original) The apparatus of claim 9, wherein said processor is further configured to control said ATU-C to transmit said information for initializing said communication link using a two bit per symbol modulation scheme.

14. (Currently Amended) An apparatus in an asynchronous digital subscriber line (ADSL) remote termination unit (ATU-R) for improving performance of a communication link, comprising a processor configured to control said ATU-R to execute processing that includes:

(a). analyzing channel properties of a plurality of sub-channels within said communication link;

(b). identifying a predefined number of first sub-channels having an anticipated highest performance for communication;

(c). communicating, to an ADSL central office termination unit (ATU-C), said first sub-channels;

(d). transmitting, to said ATU-C using said first sub-channels, information for initializing said communication link;

(e). receiving, from said ATU-C, information identifying a predefined number of second sub-channels; and

(f). receiving, from said ATU-C using said second sub-channels, information for further initializing said communication link wherein at least steps (b), (c) and (e) are performed between a channel analysis phase and an exchange phase of initialization.

15. (Original) The apparatus of claim 14, wherein said processor is further configured to control said ATU-R to communicate said first sub-channels using a one bit per symbol modulation scheme.

16. (Original) The apparatus of claim 14, wherein said processor is further configured to control said ATU-R to communicate a cyclic prefix in addition to said first sub-channels.

17. (Original) The apparatus of claim 14, wherein said processor is further configured to control said ATU-R to communicate a validity check in addition to said first sub-channels.

18. (Original) The apparatus of claim 14, wherein said processor is further configured to control said ATU-R to transmit said information for initializing said communication link using a two bit per symbol modulation scheme.

19. (New) The method of claim 1, wherein indices of a number of tones are included in messages submitted between the transceivers, the number of tones corresponding to the predefined number.

20. (New) The method of claim 19, wherein indices of the number of tones are selected in an adaptive manner.